El Custo

fixing a polymer electrolyte film to a gas-impermeable dense carbon separator, wherein a gas flow path is formed with the surface of each unit cell;

causing the polymer electrolyte film to have a water content of not greater than 4, which is expressed as a molar fraction of H_2O ; and

bonding the polymer electrolyte film to the carbon separator with an adhesive having a modulus of elasticity of not greater than 10 MPa after cure.

8. (Twice Amended) A method of manufacturing a fuel cell by fixing a polymer electrolyte film to a gas-impermeable dense carbon separator, said method comprising the steps of:

providing an adhesive having a modulus of elasticity of not greater than 10 MPa after cure; and

bonding the polymer electrolyte film to the carbon separator with the adhesive.

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17. (Twice amended) A fuel cell, comprising:

a gas-impermeable dense carbon separator; and

a polymer electrolyte film that has a water content of not greater than 4, which is expressed as a molar fraction of H₂O, and is bonded to the carbon separator with an adhesive having a modulus of elasticity of not greater than 10 MPa after cure.

18. (Twice Amended) A fuel cell, comprising:

a polymer electrolyte film;

a gas-impermeable dense carbon separator; and

an adhesive that is used to bond the polymer electrolyte film to the carbon separator and has a modulus of elasticity of not greater than 10 MPa after cure.

19. (Twice Amended) A fuel cell, comprising:

a polymer electrolyte film;

a gas-impermeable dense carbon separator; and

an adhesive that is used to bond the polymer electrolyte film to the carbon separator and has a durometer A/hardness of not greater than 90 after cure.